Mohawk College

Information Technology Division

Objective Test Scoring System

User Guide

Version: 8.1

Revised: October 20, 2000

Table of Contents

1. Guidelines for Optical Marking

The Objective Test Scoring System uses an optical scanning machine to read student response sheets. As with any mechanical system the accuracy and quality of the output is directly dependant on the quality of the input. In order to insure accurate scoring results, the following guidelines must be adhered to:

1. Use only a soft (#2 or HB) pencil to mark the response sheets. Ballpoint pen or felt tip markers produce very erratic results.
2. Erase errors completely and cleanly. Be sure that there are no eraser crumbs on the response sheets, as they will plug the mark sensors.
3. Caution should be exercised so that the marking of one bubble does not slur into another, causing unexpected results.
4. The bubbles on the response sheets must be filled with a clean dense mark. If the mark is light or does not substantially fill the bubble it will not be read. In addition, it is *very important* that the centre of the bubble is well filled. A well marked bubble with a “hole” in the middle will result in an incorrect marking.

   Examples:

   Incorrect Markings:  Not enough of bubble marked

    Centre of bubble not marked

    Erasure not complete

   Correct Markings:  Good

    Perfect!

5. The top of the form is not scanned and may be used to identify test, class, instructor etc. if desired.
6. Multiple responses to a question are not valid.
7. The scanner will not feed torn, crumpled, folded or edge damaged sheets. Jobs submitted with non-feedable sheets will be returned unprocessed.
8. Users are responsible to ensure that answer sheets are counted correctly and all oriented the same way. Incorrectly submitted jobs will be returned unscored.
9. Master, Weight (if required) and Topic (if required) sheets must be submitted for each group to be scored. Special arrangements can be made to accommodate a large number of tests requiring the same Master, Weight and/or Topic sheets by contacting Computer Operations in advance of submitting the tests.

2. Method of Submissions for Test Scoring

Before submitting test scoring to the Computer Services Department for processing, be sure the following sheets have been properly completed (where applicable)

1. Option Sheet
2. Master Answer Sheet
3. Weight Sheet
4. Topic Analysis Sheets
5. Student Answer Sheets

When several groups of tests are to be scored individually and then consolidated as one large group, be sure to complete the option sheet for the consolidation run and supply a master (and weight and topic sheets - if required) for each group before submitting to the Computer Services Department.

Submit all test scoring input along with a Computer Services Work Requisition sheet to the Data Control Clerk in Room C122. Turnaround time should not exceed twenty-four hours except in the case where sheets must be returned to the user for corrections.

Reruns of a job can be supplied for up to 1 week if the control sheet is submitted with the request. After 1 week, all sheets must be submitted with the request.

Note: It is important to note that accuracy of the results obtained from the Objective Test Scoring System are *totally dependant* on the quality of the marks on the student response sheets. All marks on a sheet must (a) be made with a soft pencil and (b) fill a substantial portion of the bubble. Any marks falling outside the bubble may cause erroneous results.

2.1 Who to contact?

The Receiving and Shipping department supplies the blank answer sheets to all users. To obtain these sheets, please contact:

575-2172 - Receiving and Receiving

If you have any questions about the test scoring system, please contact:

575-2199 - Information Technology Help Desk

3. Input

The test scoring system requires the following input materials:

1. One Option Sheet per test, supplied by the requester.
2. One Master Sheet per test, supplied by the requester.
3. One Weight sheet per test (if required), supplied by the requester.
4. Student answer sheets, flat, undamaged and all oriented the same way.
5. When Topic Analysis is requested, either of the following:
    a. One fully completed Topic Response Sheet for each topic; or
    b. A topic analysis file name entered on the Option Sheet.
6. One Computer Services Work Order per test scoring request, appropriately completed and listing any special requirements.

All materials (items 1 - 5 as required) relating to each test must be bound together in a non-destructive way, e.g. put in filing folders, large elastic bands or paper clips. Do not use staples or any other method, which will cause the sheets to be damaged or curled.

3.1 Option Sheet

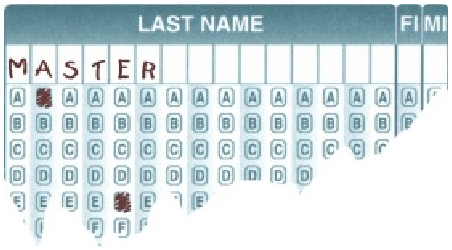
Option Sheets are provided by the Computer Centre for all test-scoring users. An Option Sheet, properly completed to reflect the desired options, must accompany all batches of answer sheets submitted to the Computer Centre. It is necessary to count the number of student answer sheets being submitted. This count does not include the master, weight or topic sheets.

The option sheet is used primarily to allow the user to have a choice of how the test is scored and what reports are printed. However, questions 1 and 2 are used to validate the test by providing the operator with an indication that the counts the scoring system computes are accurate. If these items are not entered the test will be returned unscored. The following default values are set for the remaining options:

3.	Penalty for incorrect answer	- 0.00
4.	Reports produced	- 1,3
5.	Individual Results Report	
	Sort Order	- N(ame)
	Print Surname?	- Y(es)
	Print Student No?	- Y(es)
6.	Report Heading	- Blanks

The above default values may be changed to suit your requirements. We strongly suggest that #6 (Report Heading) be filled in to identify the test. Tests submitted with blank option selections (other than 1 and 2) will be scored using default values.

3.2 Master Answer Sheet



The Master Answer Sheet is a specially coded Response Sheet and is used to supply the correct answers. If a survey analysis is to be run, this sheet is not required. Two conditions must be met to ensure that a Response Sheet is considered to be a Master sheet:

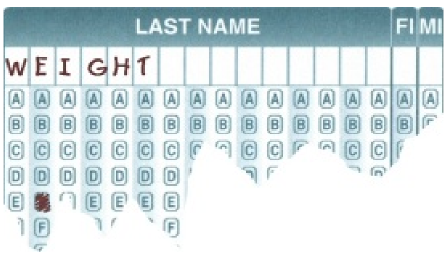
1. The word "MASTER" must be coded in the first six boxes of the area marked "LAST NAME".
2. In the "OFFICE USE ONLY" block, the 'M' in the first line must be filled in.



The correct answers must be marked in the response/answer area of the sheet. Embedded blank answers are not permitted except on null questions. Only one correct answer per question is allowed.

More than one Master in a test batch is not allowed and will result in the test being unscored.

3.3 Weight Sheet



The Weight Answer Sheet is a specially coded Response Sheet and is used to apply different weights to each answer of the test. . The weight sheet is always optional and if it is provided when only a survey analysis is requested, the sheet will be ignored. Two conditions must be met to ensure that a Response Sheet is considered to be a Weight sheet:

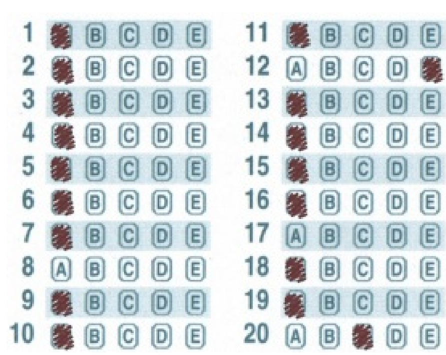
1. The word "WEIGHT" must be coded in the first six boxes of the area marked "LAST NAME".
2. In the "OFFICE USE ONLY" block, the 'W' in the first line must be filled in.



By default, all questions are given a weight of one. Customized weights can be assigned by entering marks in the response/answer portion of the sheet, according to the following chart:

Answer	Weight
A	2
B	3
C	4
D	5
E	0 (null question)

If for some reason a question is to be excluded from the test scoring run, a "Null Question" may be indicated by coding the "E" box on the Weight Sheet for the appropriate question. The corresponding question on the Master Answer Sheet should NOT be left blank(any bubble can be marked but the correct answer is recommended).. The computer will treat this as an "Unanswered" question.

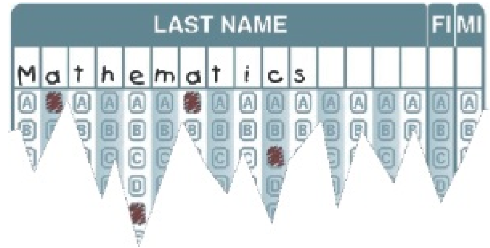


In the example on the right, all questions will be assigned a weight of 2 (Box "A") with the following exceptions:

- Questions 8 and 17 will have a weight of 1 (by default).
- Question 20 will have a weight of 4(Box "C")
- Question 12 is a null question (Box "E") and will be treated as unanswered.

It is important to note that all wrong answers have their weight multiplied by the penalty (from the Option Sheet), and the result is deducted from the adjusted score.

3.4 Topic Sheet



A Topic Sheet is a specially coded Response Sheet. However, the meanings of the individual fields are different and described as follows:

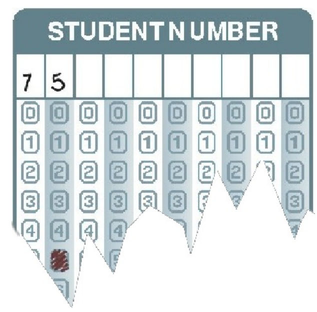
1. Topic Name — A maximum of fifteen (17) characters may be used for the Topic Name by marking the Lastname, FI and MI columns.

   When the Topic Name is processed, the first letter will always be automatically capitalized. By default, the 2nd through 17th letters will be set to lower case. These defaults can be overridden by selecting any additional letters that should be printed in upper case and marking the appropriate "capitalization" bubble at the bottom of the LastName, FI and MI columns.



2. Topic Flag — In the " Office Use Only" block, the 'T" in the first line must be filled in for each Topic Sheet.

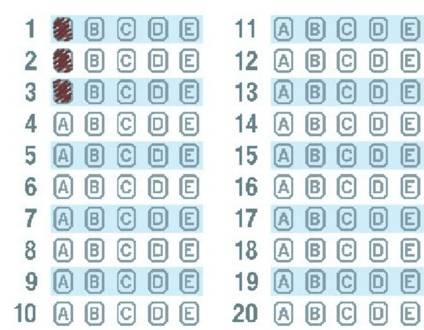
3. Pass Percent — The Passing Percentage is entered by using the first three columns of the Student Number field. The following rules apply:



   - Percentages greater than 100 are invalid and will result in the test being unscored
   - Only whole number percentages are allowed - decimals are not permitted.
   - Leading zeros are not necessary and the data can be left justified.

4. Questions — The questions that are covered by a topic are entered by marking the response/answer section of the sheet. A mark in any of the ABCDE bubbles designates that the question is to be applied to the topic. Generally it is recommended that only the "A" bubble be used so that errors and confusion are reduced. The following rules also apply:

   - Multiple marked bubbles will cause an error and result in the test being unscored.
   - Caution should be used to ensure that a question is used for ONLY one topic. Multiple topics for a question are not allowed and will result in the test being unscored.



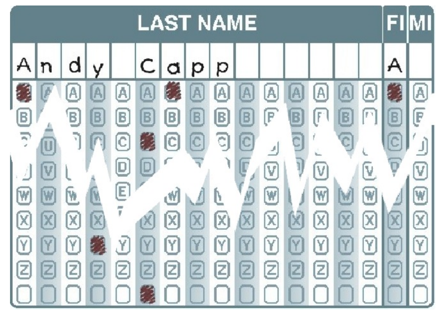
   - Any topic may have as many questions as there are in the test. However, if the questions are distributed unevenly throughout the test, the maximum for the number of questions each topic can be easily exceeded. Generally, topics should be grouped using consecution questions. As a rule of thumb no more than 16 questions or question ranges should be used. (Question ranges are consecutive questions that belong to a topic).

3.5 Student Response Sheet

Each student writing a test must fill in a Student Response Sheet. Three areas of the answer sheet are optional (LastName, FI&MI, and StudentNo), depending upon the user's requirements. The answers to the questions, while not optional, can be left blank if the student does not know the answer to a question. The individual sections of the student response sheet should be filled out as follows:

Last Name

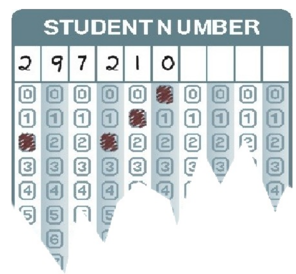
A maximum of fifteen (15) characters may be used to denote the student's surname. This name will appear on the Individual Results Report provided Item 5(Print Surname) of the Option Sheet is marked “Y”.. If this area is unused, do not request the Individual Results Analysis or Individual Results Summary in surname sequence - choose rank sequence or student number sequence if student number has been selected.



When the Last Name is processed by the Test Scoring system, the first letter will always be automatically capitalized. By default, the 2nd through 15th letters will be set to lower case. These defaults can be overridden by selecting any additional letters that should be printed in upper case and marking the appropriate” capitalization” bubble at the bottom of the LastName, FI and MI columns.

FI and MI

The First Initial and Middle Initial blocks may be utilized to identify students with a same surname and different first names. Both initials will be printed in upper case with no capitalization override available.

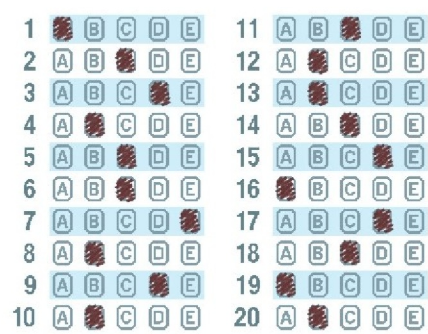


Student Number

If the user wants the student number to appear on the Individual Results Report, a student number must be coded in the student number area on each sheet, and Item 5(Print Student No.) on the Option Sheet should be marked "Y". Student Number must be completed to have the Individual Results Analysis or Individual Results Summary printed in student number sequence.

Responses/Answers

Questions are answered simply by filling in the appropriate bubble (A, B, C, D, or E). Only One answer per question is acceptable. If multiple answers are marked, one will be randomly selected and passed to the scoring system



A question may be left unanswered by leaving all bubbles unmarked. It is important to note that when incorrect answers are penalized, leaving a question unanswered (blank) avoids the penalty for that question.

Sample Option Sheet

Information Technology Division

Mohawk College

Test Scoring System Option Sheet

An Option Sheet must be completed for each group of test scoring answer sheets submitted.

1. Number of Answer Sheets submitted ☐☐☐
2. Number of questions to be marked (Max. 200) ☐☐☐
3. Penalty for Incorrect Answer ☐.☐☐
4. Reports
   1. Individual Results Analysis ☐
   2. Individual Results Summary ☐
   3. Question Analysis ☐
   4. Histogram ☐
   5. Item Analysis ☐
   6. Topic Analysis ☐
   7. Student Handout ☐
   S. Survey Analysis ☐

   Please check ☑ required reports.
   Default reports are 1 and 3.
5. Individual Results Report

   Sort Order ☐
   N = Order by Surname (default)
   S = Order by Student Number
   R = Order by Rank
   Blank = no sorting done

   Print Surname? (Yes or No) ☐

   Print Student No.? (Yes of No) ☐
6. Report Heading.

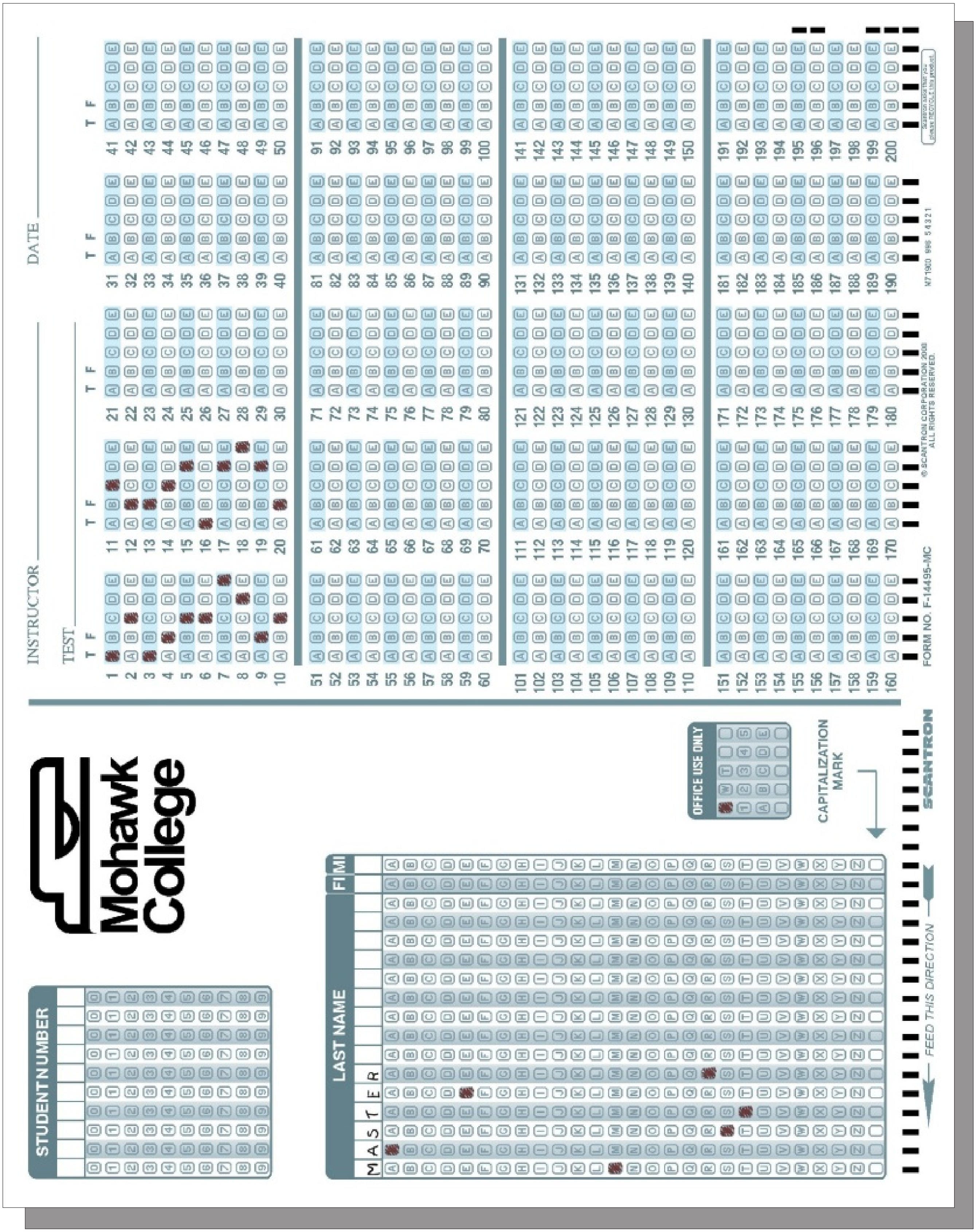
   Any Information you print below will be included in one heading line on each page of the reports.
   You may want to include your name, class, test name, etc

   ____
7. Topic file name (if data is not included with answer sheets) ________________

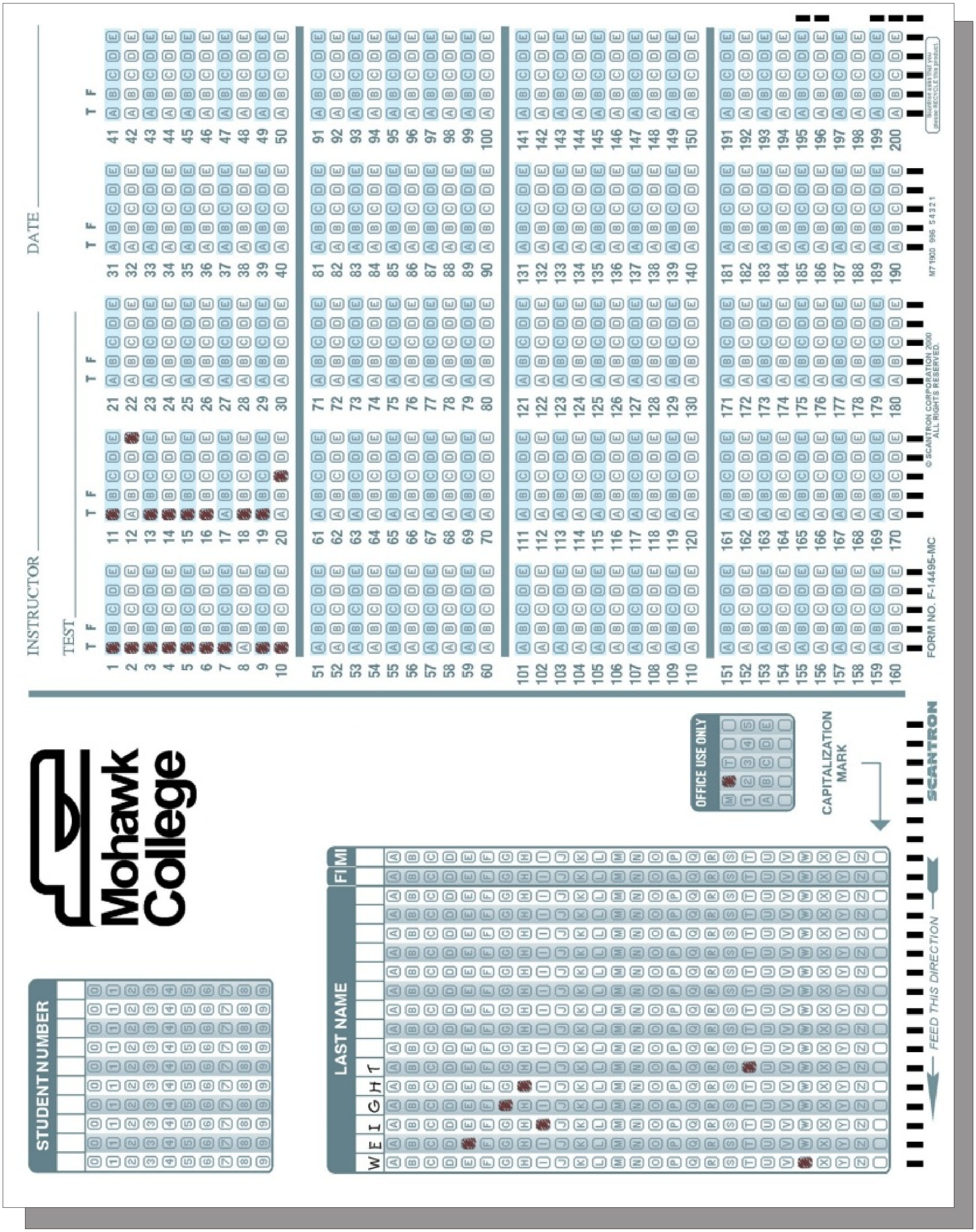
Submitted by: ________________ Phone: ____________

Date ____________ E-mail: ________________

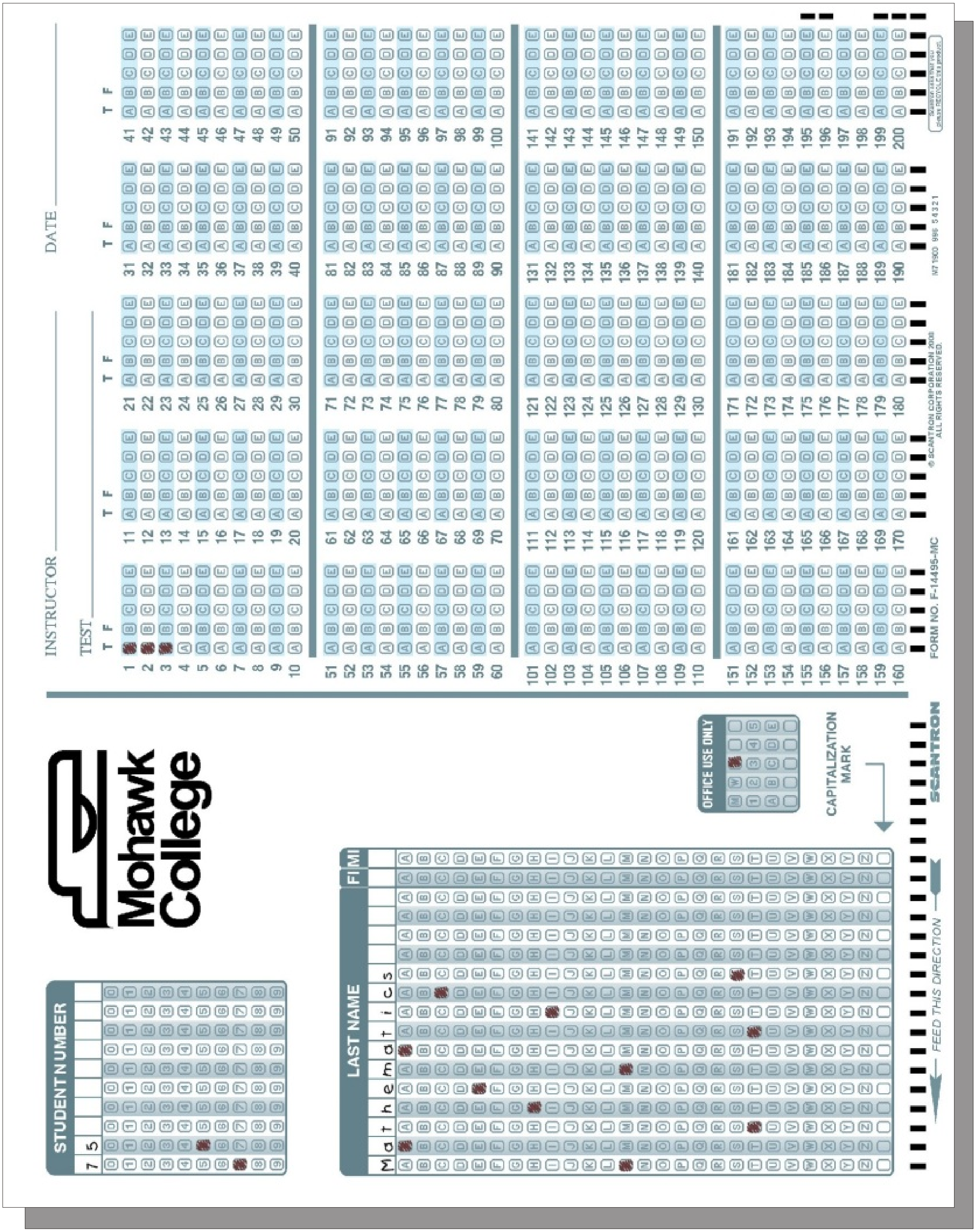
Sample Master Sheet



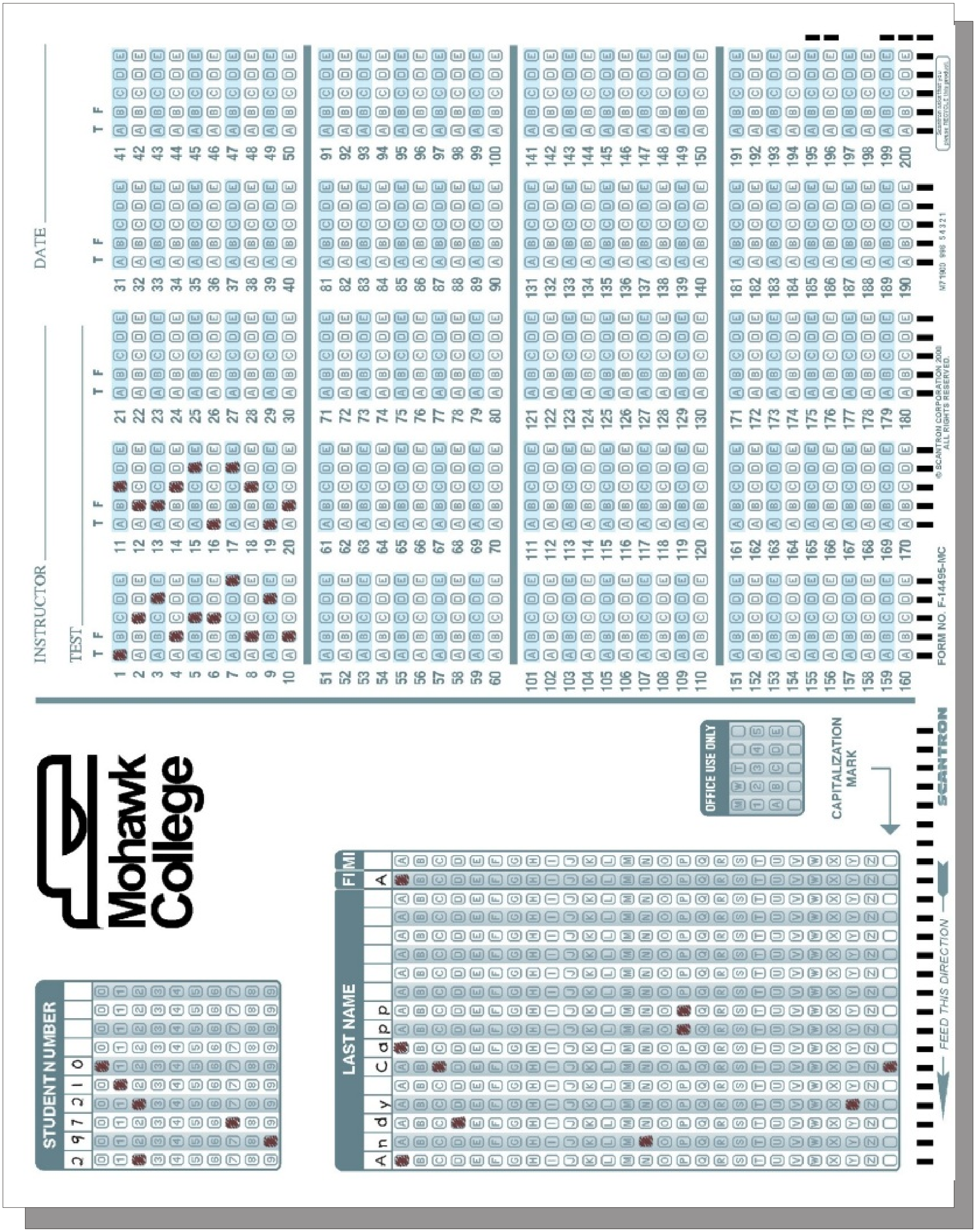
Sample Weight Sheet



Sample Topic Sheet



Sample Student Response Sheet



Sample Data

```
* Scanner Data File - Version 8.1
*
* Topic Analysis Data
T:75        :Mathematics    :  :AAA
T:65        :Physics        :  :   AAA
T:65        :Quantum Mechani:cs:      AAAA
T:65        :Celestial Navig:tn:          AA
T:65        :Basket Weaving :  :           AAA
T:65        :Physics        :  :               AAA
T:80        :Etiquette      :  :                  AA
*
* Master and/or Weight
m:          :master         :  :ACABCCEDBCCBBCDADEDB
w:          :weight         :  :AAAAAAA AAAEAAAA AAC
*
* Student Data
:331610    :Mickey Mouse   :M :ACABCCDDABCABCAACEDB
:327832    :Minnie Mouse   :M :ACEAABCDDBBBBDABCEDD
:327070    :Donald Duck    :DD:ACABCCEDBECBBCDADEDB
:359128    :Bullwinkle Moos:B :ACBBECEDBECBBCDADEDB
:329104    :Rocky Squirrel :R :ACABCCEDBABBBCDADEDB
:333574    :Pikachu        :P :CDDBCCEDBCBBBCDDEADB
:324687    :Polliwag       :L :ACABEBBEBECBBCDADEDD
:325622    :Bugs Buuny     :BB:ACDBACDABACBBCDADEDE
:329598    :Porky Pig      :P :ACABBCEDACCBBCDADDDB
:331184    :Fred Flintstone:F :ADDBACCCBACBBCDADEDB
:328672    :Barney Rubble  :B :ACABADDAAECBBCDADEDB
:445393    :Franklin Turtle:FT:ACDACCCDACEBDCDACEDC
:340471    :Tweety Bird    :T :ACABECEBBACBBCDADEDB
:455917    :Huckleberry Hou:H :ACABCBEDBBCBBCDADEDB
:446337    :Yogi Bear      :YB:ACDACCCABCCBBCDABEDD
:325725    :Booboo Bear    :B :CCAAECEDAECBBCDADEDB
:332976    :Road Runner    :R :CCABCCEDDEDBBCDAACEB
:325961    :Wiley E Coyote :WE:ACDBCBEDBECBBCDADEDB
:328732    :Goofy          :D :AEBBCCEDAEBBABDADEDB
:331509    :Pluto          :D :ACEBCCEDAECBBCDADEDA
:329638    :Daffy Duck     :D :CDABBCEDBCBBBDDADEDA
:446865    :Yosemite Sam   :Y :AEABABECEACBBCDADEDB
:329436    :Foghorn Leghorn:F :AEBBCBEDAECBBCDADCED
:453569    :George Jetson  :G :DDABCCBDAACBBCDABDEC
:328734    :Elroy Jetson   :E :CDABCCDCAACABCDACEDB
:331228    :Felix the Cat  :F :ACABCBBEBEBBBCEAEEDB
:329980    :Dagwood Bumstea:D :ACDBEBCEDBCBBCDADADA
:297210    :Andy Capp      :A :ACDBCCEBDBCBBCDADCAB
:577449    :Blondie        :D :ADABECECDABBBDABDEDE
:961440    :Archie Andrews :AA:CCAAECEDAECBBCDADEDB
:17834     :Veronica Lodge :V :CCABCCEDDEDBBCDAACEB
:961876    :Jughead Jones  :JJ:ACDBCBEDBECBBCDADEDB
:444185    :Reggie Mantle  :R :AEBBCCEDAEBBABDADEDB
:328975    :Betty Boop     :E :ACEBCCEDAECBBCDADEDA
:887180    :Hagar Horrible :H :CDABBCEDBCBBBDDADEDA
:332423    :Roger Ramjet   :R :AEABABECEACBBCDADEDB
:326225    :Broom Hilda    :B :AEBBCBEDAECBBCDADCED
:333089    :Popey Sailorman:PS:DDABCCBDAACBBCDABDEC
:303213    :Beetle Baily   :BB:CDABCCDCAACABCDACEDB
:333570    :Lttle Lulu     :LL:ACABCBBEBEBBBCEAEEDB
:804821    :Snaggle Puss   :S :ACABEBBEBECBBCDADEDD
:327432    :Lil Abner      :L :ACDBACDABACBBCDADEDE
:325116    :Daisy Mae      :D :ACABBCEDACCBBCDADDDB
:333905    :Richie Rich    :RR:ADDBACCCBACBBCDADEDB
:878757    :Charlie Brown  :C :ACABADDAAECBBCDADEDB
:333160    :Baby Huey      :B :ACDACCCDACEBDCDACEDC
:326078    :George of Jungl:G :ACABECEBBACBBCDADEDB
:325158    :Boris Bedinoff :B :ACABCBEDBBCBBCDADEDB
:326386    :Mary Worth     :M :ACDACCCABCCBBCDABEDD
:454840    :Pogo of Swamp  :P :AEBBCCEDAEBBABDADEDB
```

4. Output

The Output of the Test Scoring System is controlled by the options requested on the Option Sheet, the scoring and reporting options listed on the Option and Summary Report should match those requested on the Option Sheet.

In addition to the Option and Summary Report there are six optional reports available from the test scoring system. All reports are optional, however, the Individual Results Analysis and the Question Analysis Report are produced by default unless otherwise requested.

The reports are described in the following sections.

4.1 Options and Summary Report

This is a one page report that is produced for each scoring run. It shows the following:

1. The options that were in effect during the test scoring run as specified by the user on the Option Sheet. The total number of students is indicated at the bottom of this page is the number of sheets actually scored and if there is a difference between this number and the number supplied on the Option Sheet the results should be carefully checked to ensure all students are included.
2. A summary showing the statistical information calculated during the scoring of the test:
    1. Average correct answers
    2. Average wrong answers
    3. Average unanswered
    4. Average adjusted score
    5. Average percent
    6. Standard Deviation
    7. Number of students marked
    8. Maximum possible score
    9. The files used in this scoring run

This report must be supplied, in the event of any problems and a rerun is required, so that the necessary files may be recovered. The files are retained for one week after which time the original answer sheets are required.

4.2 Individual Results Analysis Report

This report shows the raw scores for each individual and can be printed in surname, student number or rank (percent) sequence or unsorted, depending on the options chosen on the Option Sheet. The printing of the student number and surname is optional.

Answers

Each answer is represented by its position in the boxes on the right hand side of the report. There are ten answers per box, forty answers per line. Each answer is represented by one of the following:

. = Correct answer
Blank = Unanswered
A,B,C,D or E = The actual (incorrect) answer as given by the student

Note: If there are multiple answers for one question, the machinery randomly selects and records only 1 answer. While it attempts to detect the darkest mark this cannot be guaranteed.

Scores

The total raw scores for correct answers, wrong answers and unanswered are calculated by comparing the correct answers given on the master answer sheet to those marked by the student on the student answer

sheet.

The adjusted score is calculated by the following formula:

$$\text{Total Adjusted Score} = \sum_{q=1}^{n} (\text{Right}_q - (\text{Wrong}_q * \text{Penalty})) * \text{Weight}_q$$

The percent or rank is calculated by the following formula:

$$\text{Percentage} = \frac{\text{Adjusted Score} * 100}{\text{Max. Possible Score}}$$

4.3 Individual Results Analysis Summary Report

This report is identical to the Individual Results Analysis except that the answer analysis is not displayed, this report may be more suitable for posting results, as the actual answers are not displayed

4.4 Question Analysis Report

This report prints one line of summary information for each question on the test. Each line contains the following:

1. Question number
2. Correct answer
3. Weight
4. Total responding to answer A
5. Total responding to answer B
6. Total responding to answer C
7. Total responding to answer D
8. Total responding to answer E
9. Total responding with correct answer
10. Total responding with wrong answer
11. Total unanswered

4.5 Histogram

This graph indicates the number of students that fall into each of the eleven percentage ranges as indicated across the top of the graph.

4.6 Item Analysis and Reliability Report

This report divides the class into three groups — upper 27%, middle 46% and lower 27% — showing the percentage of students that answered each of the five choices - A,B,C,D or E. The degree of difficulty of the question (D) is calculated by the following formula:

$$\text{Difficulty} = \frac{\text{U27\% Right} + \text{L27\% Right}}{\text{No of students in (U27\% + L27\%)}}$$

The validity of the question (V) is calculated by the following formula:

$$\text{Validity} = \text{U27\% Right} - \text{L27\% Right}$$

The interpretation of "V" and any contributing factors that may affect it is left to the user's discretion.

4.7 Topic Analysis Report

The Topic Analysis Reports's purpose is to allow the users to evaluate a student's performance in each topic or subject area that was covered on a multiple choice test. In order to evaluate each student in particular topics, the instructor must complete a Topic Sheet for each topic covered on the test. Two reports are created. The Topic Analysis Report is divided into 3 sections as follows:

Individual Student Topic Report

This report shows the performance of each student in the topics covered by the test and shows the following:

1. The student's Name, Initials and Student Number
2. The student's Overall Test Average
3. A list of Topics containing the Topic Name, the student's percentage achieved for the topic and, if the student as failed the topic, an asterisk beside the Topic Name

Topic Map

This report lists the topics covered in this test and the questions related to each topic.

Topic Statistics Report

This report lists the topics covered in this test and summarizes the classes performance for each topic. The report displays one line for each topic and contains the following information:

1. The total number and percentage of students that have passed the topic
2. The class average and standard deviation achieved for the topic
3. The highest and lowest marks given in the topic.

4.8 Student Handout

The Student Handout provides information on their personal results of the test and a perspective how they have performed in relationship to the rest of the class. If Student Handouts are requested via the options, one handout is generated for each student in the class.

Each handout is broken down into 5 sections as follows:

1. Statistics — display the student test results and includes the following:
   - Percentage, Raw Score and Maximum Score attainable.
   - The number of Right, Wrong and Unanswered questions
   - The penalty for a wrong answer and the total penalties accumulated
2. Answers — displays, for each question, the Student' Answer, the Right Answer and the weight associated with the question.
3. Topic Analysis — displays the Topics covered in the test. For each topic, the student's percentage, and the questions that relate to that topic are displayed. An asterisk before the topic indicates the student failed the topic.
4. Class Averages — displays information related to how the class as a whole performed and includes the following:
   - Overall Class Percentage, Standard Deviation, and Adjusted Score
   - The Average Right, Wrong, and Unanswered questions
5. Histogram — graphically shows the student's performance relative to the rest of the class and includes:
   - The base histogram giving the distribution of the class results
   - A Mean (Class Average) Marker
   - A Student Score Marker showing where the student lies within the class results

4.9 Survey Analysis Report

The survey analysis report provides information on the number of respondents to each question. Its primary use is for survey's in which there is no correct answer or answers are based upon opinion. No master is required to run a survey analysis. If a survey analysis is requested this is the only report produced. One line of summary information is printed for each question on the test. Each line contains the following:

1. Question number
2. Total responding to answer A
3. Total responding to answer B
4. Total responding to answer C
5. Total responding to answer D
6. Total responding to answer E
7. Total unanswered

Sample Option and Summary Report

September 11, 2000

Objective Test Scoring System

Options and Summary Report

Options in effect during this run:

Number of answer sheets submitted - 50
Number of answers marked - 20
Penalty - 0.00
Reports produced - 1. Inidvidual Results Analysis
2. Inidvidual Results Summary
3. Question Analysis
4. Histogram
5. Item Analysis
6. Topic Analysis
7. Student Handouts
S. Survey Analysis
Report sequence - N. Surname
Surname printed - Yes
Student Number printed - Yes
Weight - Results are weighed

Averages:

Right - 14.08
Wrong - 5.92
Unanswered - 0.00
Adjusted Score - 26.24
Percentage - 69.05
Standard Deviation - 13.03

Maximum possible score - 38

Files used:

Input: Scanner data file - C:\data\score\SampleData
Topics data file - (Topics data included in scanner data)

Output: Statistics file -

Sample Individual Results Report

September 11, 2000

Objective Test Scoring System

Individual Results Analysis

Page: 1.1

Student Number	Student Name	Init	Percent	Raw Score Right	Raw Score Wrong	Raw Score Unans	Adjusted Score		
297210	Andy Capp	A	71.05	14	6	0	27.00	. . D. . . . BDB	. . . . CA.
961440	Archie Andrews	AA	73.68	15	5	0	28.00	C. . AE. . . AE	. . . .
333160	Baby Huey	B	55.26	12	8	0	21.00	. . DA. . C. A.	E. D. . . C. . C
328672	Barney Rubble	B	71.05	14	6	0	27.00	. . . . ADDAAE	. . . .
303213	Beetle Baily	BB	68.42	12	8	0	26.00	CD. . . . DCAA	. A. . . . C. . .
328975	Betty Boop	E	73.68	16	4	0	28.00	. . E. . . . . AE	. . . . A
577449	Blondie	D	44.74	10	10	0	17.00	. D. . E. . CDA	B. . DAB. . . E
325725	Booboo Bear	B	73.68	15	5	0	28.00	C. . AE. . . AE	. . . .
325158	Boris Bedinoff	B	89.47	18	2	0	34.00	. . . . . B. . . B	. . . .
326225	Broom Hilda	B	52.63	12	8	0	20.00	. EB. . B. . AE	. . . . CED
325622	Bugs Buuny	BB	65.79	14	6	0	25.00	. . D. A. DA. A	. . . . E
359128	Bullwinkle Moos	B	84.21	17	3	0	32.00	. . B. E. . . . E	. . . .
878757	Charlie Brown	C	71.05	14	6	0	27.00	. . . . ADDAAE	. . . .
329638	Daffy Duck	D	63.16	14	6	0	24.00	CD. . B.	B. . D. . . . . A
329980	Dagwood Bumstea	D	50.00	11	9	0	19.00	. . D. EBCEDB	. . . . A. A
325116	Daisy Mae	D	84.21	17	3	0	32.00	. . . . B. . . A.	. . . . D. .
327070	Donald Duck	D	94.74	19	1	0	36.00	. . . . E	. . . .
328734	Elroy Jetson	E	68.42	12	8	0	26.00	CD. . . . DCAA	. A. . . . C. . .
331228	Felix the Cat	F	68.42	13	7	0	26.00	. . . . . BBE. E	B. . . E. E. . .
329436	Foghorn Leghorn	F	52.63	12	8	0	20.00	. EB. . B. . AE	. . . . CED
445393	Franklin Turtle	FT	55.26	12	8	0	21.00	. . DA. . C. A.	E. D. . . C. . C
331184	Fred Flintstone	F	71.05	14	6	0	27.00	. DD. A. CC. A	. . . .
453569	George Jetson	G	50.00	11	9	0	19.00	DD. . . . B. AA	. . . . . . BDEC
326078	George of Jungl	G	86.84	17	3	0	33.00	. . . . E. . B. A	. . . .
328732	Goofy	D	63.16	13	7	0	24.00	. EB. . . . . AE	B. AB. . . . . .
887180	Hagar Horrible	H	63.16	14	6	0	24.00	CD. . B.	B. . D. . . . . A
455917	Huckleberry Hou	H	89.47	18	2	0	34.00	. . . . . B. . . B	. . . .
961876	Jughead Jones	JJ	84.21	17	3	0	32.00	. . D. . B. . . E	. . . .
327432	Lil Abner	L	65.79	14	6	0	25.00	. . D. A. DA. A	. . . . E
333570	Lttle Lulu	LL	68.42	13	7	0	26.00	. . . . . BBE. E	B. . . E. E. . .
326386	Mary Worth	M	68.42	14	6	0	26.00	. . DA. . CA. .	. . . . . . B. . D
331610	Mickey Mouse	M	76.32	14	6	0	29.00	. . . . . . D. AB	. A. . A. C. . .
327832	Minnie Mouse	M	28.95	7	13	0	11.00	. . EAABC. DB	B. . DABC. . D
333574	Pikachu	P	65.79	13	7	0	25.00	CDD.	B. . . . DEA. .
331509	Pluto	D	73.68	16	4	0	28.00	. . E. . . . . AE	. . . . A
454840	Pogo of Swamp	P	63.16	13	7	0	24.00	. EB. . . . . AE	B. AB. . . . . .
324687	Polliwag	L	65.79	14	6	0	25.00	. . . . EBBE. E	. . . . D
333089	Popey Sailorman	PS	50.00	11	9	0	19.00	DD. . . . B. AA	. . . . . . BDEC
329598	Porky Pig	P	84.21	17	3	0	32.00	. . . . B. . . A.	. . . . D. .
444185	Reggie Mantle	R	63.16	13	7	0	24.00	. EB. . . . . AE	B. AB. . . . . .
333905	Richie Rich	R	71.05	14	6	0	27.00	. DD. A. CC. A	. . . .
332976	Road Runner	R	65.79	13	7	0	25.00	C. . . . . . . DE	D. . . . . ACE.
329104	Rocky Squirrel	R	89.47	18	2	0	34.00	. . . . A	B. . . . .
332423	Roger Ramjet	R	71.05	14	6	0	27.00	. E. . AB. CEA	. . . .
804821	Snaggle Puss	S	65.79	14	6	0	25.00	. . . . EBBE. E	. . . . D
340471	Tweety Bird	T	86.84	17	3	0	33.00	. . . . E. . B. A	. . . .
17834	Veronica Lodge	V	65.79	13	7	0	25.00	C. . . . . . . DE	D. . . . . ACE.
325961	Wiley E Coyote	W	84.21	17	3	0	32.00	. . D. . B. . . E	. . . .
446337	Yogi Bear	YB	68.42	14	6	0	26.00	. . DA. . CA. .	. . . . . . B. . D
446865	Yosemite Sam	Y	71.05	14	6	0	27.00	. E. . AB. CEA	. . . .

Individual Results Summary Report

September 11, 2000

Objective Test Scoring System

Individual Results Analysis - Summary

Page: 2.1

Student Number	Student Name	Init	Percent	Raw Score Right	Wrong	Unans	Adjusted Score
297210	Andy Capp	A	71.05	14	6	0	27.00
961440	Archie Andrews	AA	73.68	15	5	0	28.00
333160	Baby Huey	B	55.26	12	8	0	21.00
328672	Barney Rubble	B	71.05	14	6	0	27.00
303213	Beetle Baily	BB	68.42	12	8	0	26.00
328975	Betty Boop	E	73.68	16	4	0	28.00
577449	Blondie	D	44.74	10	10	0	17.00
325725	Booboo Bear	B	73.68	15	5	0	28.00
325158	Boris Bedinoff	B	89.47	18	2	0	34.00
326225	Broom Hilda	B	52.63	12	8	0	20.00
325622	Bugs Buuny	BB	65.79	14	6	0	25.00
359128	Bullwinkle Moos	B	84.21	17	3	0	32.00
878757	Charlie Brown	C	71.05	14	6	0	27.00
329638	Daffy Duck	D	63.16	14	6	0	24.00
329980	Dagwood Bumstea	D	50.00	11	9	0	19.00
325116	Daisy Mae	D	84.21	17	3	0	32.00
327070	Donald Duck	D	94.74	19	1	0	36.00
328734	Elroy Jetson	E	68.42	12	8	0	26.00
331228	Felix the Cat	F	68.42	13	7	0	26.00
329436	Foghorn Leghorn	F	52.63	12	8	0	20.00
445393	Franklin Turtle	FT	55.26	12	8	0	21.00
331184	Fred Flintstone	F	71.05	14	6	0	27.00
453569	George Jetson	G	50.00	11	9	0	19.00
326078	George of Jungl	G	86.84	17	3	0	33.00
328732	Goofy	D	63.16	13	7	0	24.00
887180	Hagar Horrible	H	63.16	14	6	0	24.00
455917	Huckleberry Hou	H	89.47	18	2	0	34.00
961876	Jughead Jones	JJ	84.21	17	3	0	32.00
327432	Lil Abner	L	65.79	14	6	0	25.00
333570	Lttle Lulu	LL	68.42	13	7	0	26.00
326386	Mary Worth	M	68.42	14	6	0	26.00
331610	Mickey Mouse	M	76.32	14	6	0	29.00
327832	Minnie Mouse	M	28.95	7	13	0	11.00
333574	Pikachu	P	65.79	13	7	0	25.00
331509	Pluto	D	73.68	16	4	0	28.00
454840	Pogo of Swamp	P	63.16	13	7	0	24.00
324687	Polliwag	L	65.79	14	6	0	25.00
333089	Popey Sailorman	PS	50.00	11	9	0	19.00
329598	Porky Pig	P	84.21	17	3	0	32.00
444185	Reggie Mantle	R	63.16	13	7	0	24.00
333905	Richie Rich	R	71.05	14	6	0	27.00
332976	Road Runner	R	65.79	13	7	0	25.00
329104	Rocky Squirrel	R	89.47	18	2	0	34.00
332423	Roger Ramjet	R	71.05	14	6	0	27.00
804821	Snaggle Puss	S	65.79	14	6	0	25.00
340471	Tweety Bird	T	86.84	17	3	0	33.00
17834	Veronica Lodge	V	65.79	13	7	0	25.00
325961	Wiley E Coyote	W	84.21	17	3	0	32.00
446337	Yogi Bear	YB	68.42	14	6	0	26.00
446865	Yosemite Sam	Y	71.05	14	6	0	27.00

Question Analysis Report

September 11, 2000

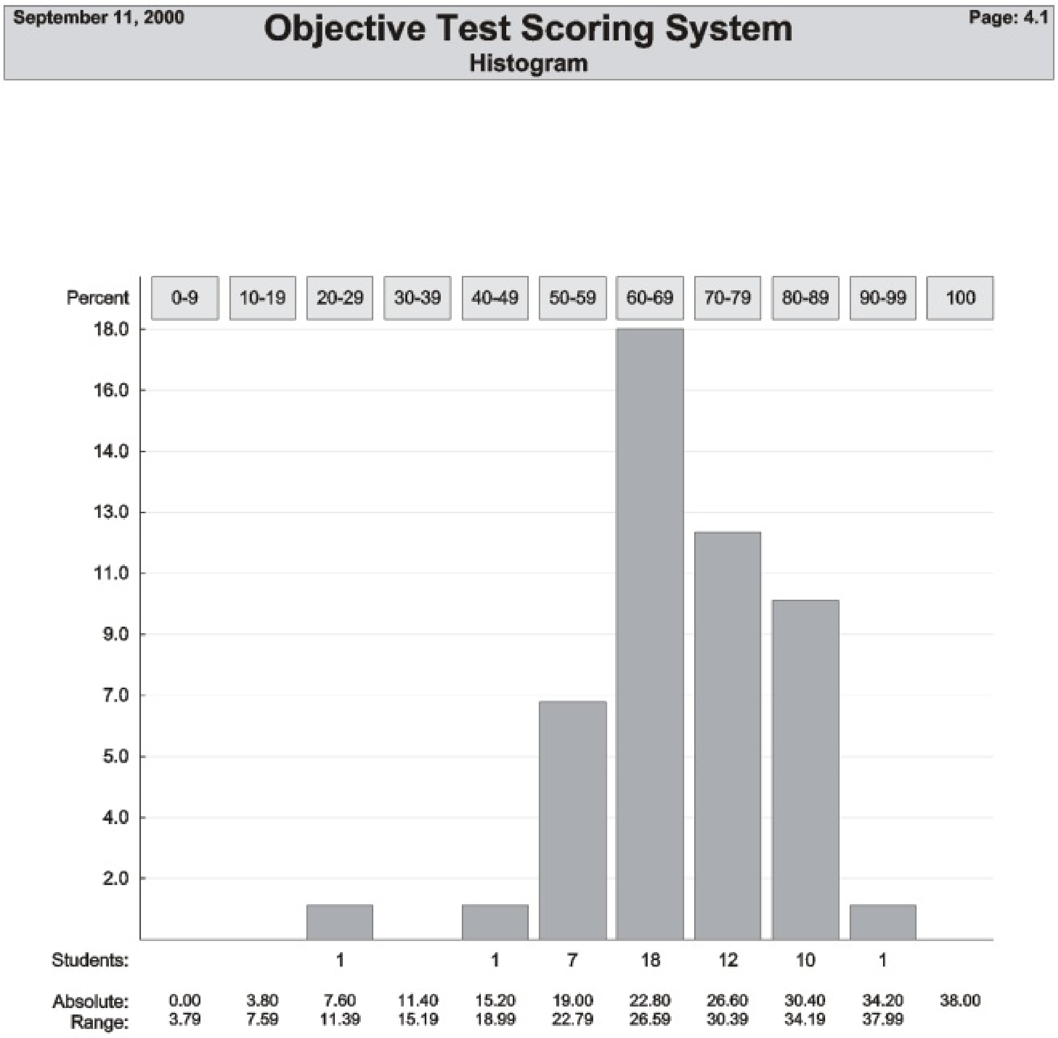
Objective Test Scoring System

Question Analysis

Page: 3.1

Question	Correct		A		B		C		D		E		Right		Wrong		Unans	
Number	Answer	Weight	No.	Perc	No.	Perc	No.	Perc	No.	Perc	No.	Perc	No.	Perc	No.	Perc	No.	Perc
1	A	2	39	78.00	0	0.00	9	18.00	2	4.00	0	0.00	39	78.00	11	22.00	0	0.00
2	C	2	0	0.00	0	0.00	33	66.00	10	20.00	7	14.00	33	66.00	17	34.00	0	0.00
3	A	2	28	56.00	6	12.00	0	0.00	13	26.00	3	6.00	28	56.00	22	44.00	0	0.00
4	B	2	7	14.00	43	86.00	0	0.00	0	0.00	0	0.00	43	86.00	7	14.00	0	0.00
5	C	2	9	18.00	4	8.00	28	56.00	0	0.00	9	18.00	28	56.00	22	44.00	0	0.00
6	C	2	0	0.00	14	28.00	34	68.00	2	4.00	0	0.00	34	68.00	16	32.00	0	0.00
7	E	2	0	0.00	6	12.00	8	16.00	7	14.00	29	58.00	29	58.00	21	42.00	0	0.00
8	D	1	6	12.00	3	6.00	7	14.00	29	58.00	5	10.00	29	58.00	21	42.00	0	0.00
9	B	2	20	40.00	22	44.00	0	0.00	6	12.00	2	4.00	22	44.00	28	56.00	0	0.00
10	C	2	14	28.00	6	12.00	9	18.00	0	0.00	21	42.00	9	18.00	41	82.00	0	0.00
11	C	2	0	0.00	11	22.00	35	70.00	2	4.00	2	4.00	35	70.00	15	30.00	0	0.00
12	B	0	3	6.00	47	94.00	0	0.00	0	0.00	0	0.00	47	94.00	3	6.00	0	0.00
13	B	2	3	6.00	45	90.00	0	0.00	2	4.00	0	0.00	45	90.00	5	10.00	0	0.00
14	C	2	0	0.00	3	6.00	43	86.00	4	8.00	0	0.00	43	86.00	7	14.00	0	0.00
15	D	2	3	6.00	0	0.00	0	0.00	45	90.00	2	4.00	45	90.00	5	10.00	0	0.00
16	A	2	47	94.00	2	4.00	0	0.00	1	2.00	0	0.00	47	94.00	3	6.00	0	0.00
17	D	1	2	4.00	4	8.00	6	12.00	35	70.00	3	6.00	35	70.00	15	30.00	0	0.00
18	E	2	2	4.00	0	0.00	5	10.00	4	8.00	39	78.00	39	78.00	11	22.00	0	0.00
19	D	2	1	2.00	0	0.00	0	0.00	43	86.00	6	12.00	43	86.00	7	14.00	0	0.00
20	B	4	5	10.00	31	62.00	4	8.00	7	14.00	3	6.00	31	62.00	19	38.00	0	0.00

Sample Histogram



Sample Item Analysis and Reliability Report

September 11, 2000 | **Objective Test Scoring System** | Page: 5.1

Item Analysis and Reliability

Item Number: 1 Key: A Sep 11/00

	A	B	C	D	E	NA	
U27	92	0	8	0	0	0	
M46	75	0	25	0	0	0	D= 6
L27	69	0	15	15	0	0	V= 23

Item Number: 2 Key: C Sep 11/00

	A	B	C	D	E	NA	
U27	0	0	100	0	0	0	
M46	0	0	67	21	12	0	D= 5
L27	0	0	31	38	31	0	V= 69

Item Number: 3 Key: A Sep 11/00

	A	B	C	D	E	NA	
U27	77	8	0	15	0	0	
M46	54	4	0	33	8	0	D= 4
L27	38	31	0	23	8	0	V= 39

Item Number: 4 Key: B Sep 11/00

	A	B	C	D	E	NA	
U27	8	92	0	0	0	0	
M46	12	88	0	0	0	0	D= 6
L27	23	77	0	0	0	0	V= 15

Item Number: 5 Key: C Sep 11/00

	A	B	C	D	E	NA	
U27	0	15	54	0	31	0	
M46	33	0	54	0	12	0	D= 4
L27	8	15	62	0	15	0	V= -8

Item Number: 6 Key: C Sep 11/00

	A	B	C	D	E	NA	
U27	0	31	69	0	0	0	
M46	0	25	67	8	0	0	D= 5
L27	0	31	69	0	0	0	V= 0

Item Number: 7 Key: E Sep 11/00

	A	B	C	D	E	NA	
U27	0	0	0	8	92	0	
M46	0	17	17	25	42	0	D= 6
L27	0	15	31	0	54	0	V= 38

Item Number: 8 Key: D Sep 11/00

	A	B	C	D	E	NA	
U27	0	15	0	85	0	0	
M46	25	4	25	29	17	0	D= 7
L27	0	0	8	85	8	0	V= 0

Item Number: 9 Key: B Sep 11/00

	A	B	C	D	E	NA	
U27	31	69	0	0	0	0	
M46	33	46	0	12	8	0	D= 3
L27	62	15	0	23	0	0	V= 54

Item Number: 10 Key: C Sep 11/00

	A	B	C	D	E	NA	
U27	23	23	15	0	38	0	
M46	33	4	12	0	50	0	D= 2
L27	23	15	31	0	31	0	V= -16

Item Number: 11 Key: C Sep 11/00

	A	B	C	D	E	NA	
U27	0	8	92	0	0	0	
M46	0	17	75	8	0	0	D= 5
L27	0	46	38	0	15	0	V= 54

Item Number: 12 Key: B Sep 11/00

	A	B	C	D	E	NA	
U27	0	0	0	0	0	100	
M46	0	0	0	0	0	100	D= 7
L27	0	0	0	0	0	100	V= -8

Item Number: 13 Key: B Sep 11/00

	A	B	C	D	E	NA	
U27	0	100	0	0	0	0	
M46	4	96	0	0	0	0	D= 6
L27	15	69	0	15	0	0	V= 31

Item Number: 14 Key: C Sep 11/00

	A	B	C	D	E	NA	
U27	0	0	100	0	0	0	
M46	0	4	96	0	0	0	D= 6
L27	0	15	54	31	0	0	V= 46

Item Number: 15 Key: D Sep 11/00

	A	B	C	D	E	NA	
U27	8	0	0	92	0	0	
M46	0	0	0	92	8	0	D= 7
L27	15	0	0	85	0	0	V= 7

Item Number: 16 Key: A Sep 11/00

	A	B	C	D	E	NA	
U27	100	0	0	0	0	0	
M46	96	0	0	4	0	0	D= 7
L27	85	15	0	0	0	0	V= 15

Item Number: 17 Key: D Sep 11/00

	A	B	C	D	E	NA	
U27	0	0	8	92	0	0	
M46	8	8	8	62	12	0	D= 6
L27	0	15	23	62	0	0	V= 30

Item Number: 18 Key: E Sep 11/00

	A	B	C	D	E	NA	
U27	0	0	0	15	85	0	
M46	4	0	12	0	83	0	D= 6
L27	8	0	15	15	62	0	V= 23

Item Number: 19 Key: D Sep 11/00

	A	B	C	D	E	NA	
U27	0	0	0	100	0	0	
M46	4	0	0	88	8	0	D= 6
L27	0	0	0	69	31	0	V= 31

Item Number: 20 Key: B Sep 11/00

	A	B	C	D	E	NA	
U27	0	100	0	0	0	0	
M46	8	67	0	17	8	0	D= 4
L27	23	15	31	23	8	0	V= 85

Upper 27% = 13 students, Middle 46% = 24 students, Lower 27% = 13 students.

Sample Topic Analysis Report

September 11, 2000 **Objective Test Scoring System** Page 6.1

Topic Analysis

Andy Capp, A 297210		**Archie Andrews, AA** 961440		**Baby Huey, B** 333160		**Barney Rubble, B** 328672	
*=failed		*=failed		*=failed		*=failed	
Overall Test Average =	71.05%	Overall Test Average =	73.68%	Overall Test Average =	55.26%	Overall Test Average =	71.05%
*Mathematics	66.67%	*Mathematics	66.67%	*Mathematics	66.67%	Mathematics	100.00%
Physics	100.00%	*Physics	33.33%	Physics	66.67%	*Physics	33.33%
*Quantum Mechanics	25.00%	*Quantum Mechanics	50.00%	*Quantum Mechanics	50.00%	*Quantum Mechanics	0.00%
*Celesial Navigatn	50.00%	*Celesial Navigatn	50.00%	*Celesial Navigatn	0.00%	*Celesial Navigatn	50.00%
Basket Weaving	100.00%	Basket Weaving	100.00%	Basket Weaving	66.67%	Basket Weaving	100.00%
Physical Ed	66.67%	Physical Ed	100.00%	Physical Ed	66.67%	Physical Ed	100.00%
*Etiquette	50.00%	Etiquette	100.00%	*Etiquette	50.00%	Etiquette	100.00%

Beetle Baily, BB 303213		**Betty Boop, E** 328975		**Blondie, D** 577449		**Booboo Bear, B** 325725	
*=failed		*=failed		*=failed		*=failed	
Overall Test Average =	68.42%	Overall Test Average =	73.68%	Overall Test Average =	44.74%	Overall Test Average =	73.68%
*Mathematics	33.33%	*Mathematics	66.67%	*Mathematics	66.67%	*Mathematics	66.67%
Physics	100.00%	Physics	100.00%	Physics	66.67%	*Physics	33.33%
		Quantum Mechanics	50.00%	*Quantum Mechanics	25.00%	*Quantum Mechanics	50.00%
			50.00%	*Celesial Navigatn	0.00%	*Celesial Navigatn	50.00%
			100.00%	*Basket Weaving	33.33%	Basket Weaving	100.00%
				Physical Ed	66.67%	Physical Ed	100.00%
				*Etiquette	50.00%	Etiquette	100.00%

Part 1 - Individual Scores

September 11, 2000 **Objective Test Scoring System** Page 6.4

Topic Analysis

Topic to Question Mappings

Topic	Pass %	Questions
Mathematics	75	1-3
Physics	65	4-6
Quantum Mechanics	65	7-10
Celesial Navigatn	65	11-12
Basket Weaving	65	13-15
Physical Ed	65	16-18
Etiquette	80	19-20

Part 2 - Topic Map

October 20, 2000 — Page 6.4

Objective Test Scoring System

Topic Analysis

Topic Statistics

Topic	Passed	% Passed	Average	Std Dev	High	Low
Mathematics	15	30.00	66.67	26.94	100.00	0.00
Physics	40	80.00	70.00	25.42	100.00	0.00
Quantum Mechanics	12	24.00	44.50	26.39	100.00	0.00
Celesial Navigatn	0	0.00	35.00	23.15	50.00	0.00
Basket Weaving	45	90.00	88.67	21.94	100.00	33.33
Physical Ed	44	88.00	80.67	25.28	100.00	0.00
Etiquette	28	56.00	74.00	32.32	100.00	0.00

Part 3 - Topic Statistics

Sample Student Handout

October 20, 2000

Objective Test Scoring System

Student Handout

Surname	Init.	Student No.
Andy Capp	**A**	**297210**

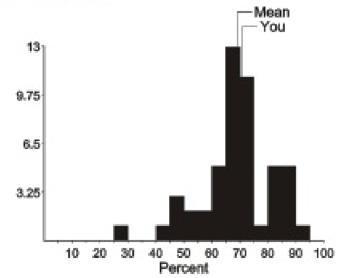
Statistics

Percent:	71.05
Adjusted Score:	27.00
Maximum Score:	38
Right:	14
Wrong:	6
UnAnswered:	0
Penalty for wrong Answer:	0.00
Total Penalties:	0.00

Class Averages

Percentage:	69.05
Standard Deviation:	13.03
Adjusted Score:	26.24
Right:	14.08
Wrong:	5.92
Unanswered:	0.00

Histogram



Answers

	Questions 1 - 20	
Ans	. . D . . . . BDB	. . . . CA .
Right	ACABCCEDBC	CBBCDADEDB
Weight	2222222122	2022221224

Topic Analysis

	Topic	Percent	Pass %	Questions
*	Mathematics	66.67	75	1-3
	Physics	100.00	65	4-6
*	Quantum Mechanics	25.00	65	7-10
*	Celesial Navigatn	50.00	65	11-12
	Basket Weaving	100.00	65	13-15
	Physical Ed	66.67	65	16-18
*	Etiquette	50.00	80	19-20

Sample Survey Analysis

September 11, 2000

Objective Test Scoring System

Survey Analysis

Page: S.1

Question	A		B		C		D		E		Unans	
Number	No	Per	No	Per	No	Per	No	Per	No	Per	No	Per
1	39	78.0	0	0.00	9	18.0	2	4.00	0	0.00	0	0.00
2	0	0.00	0	0.00	33	66.0	10	20.0	7	14.0	0	0.00
3	28	56.0	6	12.0	0	0.00	13	26.0	3	6.00	0	0.00
4	7	14.0	43	86.0	0	0.00	0	0.00	0	0.00	0	0.00
5	9	18.0	4	8.00	28	56.0	0	0.00	9	18.0	0	0.00
6	0	0.00	14	28.0	34	68.0	2	4.00	0	0.00	0	0.00
7	0	0.00	6	12.0	8	16.0	7	14.0	29	58.0	0	0.00
8	6	12.0	3	6.00	7	14.0	29	58.0	5	10.0	0	0.00
9	20	40.0	22	44.0	0	0.00	6	12.0	2	4.00	0	0.00
10	14	28.0	6	12.0	9	18.0	0	0.00	21	42.0	0	0.00
11	0	0.00	11	22.0	35	70.0	2	4.00	2	4.00	0	0.00
12	3	6.00	47	94.0	0	0.00	0	0.00	0	0.00	0	0.00
13	3	6.00	45	90.0	0	0.00	2	4.00	0	0.00	0	0.00
14	0	0.00	3	6.00	43	86.0	4	8.00	0	0.00	0	0.00
15	3	6.00	0	0.00	0	0.00	45	90.0	2	4.00	0	0.00
16	47	94.0	2	4.00	0	0.00	1	2.00	0	0.00	0	0.00
17	2	4.00	4	8.00	6	12.0	35	70.0	3	6.00	0	0.00
18	2	4.00	0	0.00	5	10.0	4	8.00	39	78.0	0	0.00
19	1	2.00	0	0.00	0	0.00	43	86.0	6	12.0	0	0.00
20	5	10.0	31	62.0	4	8.00	7	14.0	3	6.00	0	0.00

5. Files

5.1 Raw Scanner Data

When test is scanned using the optical scanner, the output data is stored in a file before it is passed to the scoring section of the Test Scoring program. This raw data is usually retained for about a week so that re-runs of the test can take place in the event of an error or a different set of options are required. Occasionally, instructors may wish to do use a different or enhanced system for scoring and analysing their tests. In this case the raw data may be useful. This data is stored in a colon delimited file in the following format.

Field Name	Start Position	Length	Comments
Record Type	1	1	m=Master, w=Weight, t=Topic blank=Student Response, * = Comment
delimiter (:)	2	1	
Student Number	3	10	
delimiter (:)	13	1	
Last Name	14	15	
delimiter (:)	29	1	
Initials	30	2	
delimiter (:)	32	1	
Answers	33	200	

It is important to note that the interpretation of each of the fields is dependent upon the record type. These interpretations are described in Section 3 (Input) of this guide.

Raw Scanner Data that is used by the Scoring section must be preceded by a comment record that appears as follows:

* Scanner Data File - Version 8.1

This record is used as a cross check to ensure that the file contains the correct version of scanner output.

5.2 Statistics Files

From time to time, instructors may wish to do further analysis of their students results using their own tools such as Excel, Lotus 123 or a data base package. To facilitate this, the Test Scoring System can create the following files:

5.2.1 Basic Statistics File

The basic statistics file contains data in fixed sized fields and no delimiters between any of the fields. The definitions of the fields are as follows:

Field Name	Start Position	Length
Student Number	1	10
Last Name	11	15
Initials	26	2
Percentage	28	8
No. of Right Answers	36	5
No. of Wrong Answers	41	5
No. of Unanswered Questions	46	5
Student Answers to Questions	51	200

5.2.2 Extended Statistics File

The Extended statistics file contains variable length data records for each student. Each record contains ASCII delimited fields, suitable for importing into spreadsheet programs such as Excel, Quattro, and Lotus or database programs such as Access and Paradox. All fields are separated by commas and enclosed in double quotes.. The definitions of the fields are as follows:

Field Name	Comments
Student Number	
Last Name	
Initials	
Percentage	
No. of Right Answers	
No. of Wrong Answers	
No. of Unanswered Questions	
Student Answers to Questions	
No. of Topics	The No. of Topics signifies the number of topic groups that follow this field. A topic group consists of 3 fields as follows:
Topic Name	
Pass Percent	
Student Percent for Topic	
Blank	This blank field is used to separate topic groups and provide slightly better readability in spreadsheet format.

The first record of the Extended Statistics file is a “title” record which provides a description/title of the fields in the record. Some spreadsheets and database programs allow this first record to be imported as the column titles.

5.3 Topics Data File

This file is used mainly to internally store topic analysis data within the Test Scoring System. However, when pre-arrangements have been made with Computer Services, it may be more efficient, especially when the same data is used frequently or in repeated runs of the same type of test, to provide this data in a file rather than using Topic Sheets. One record for each topic must be provided. Each record is in variable length, semi-colon delimited format.

Field Name	Comments
Topic Name	Up to 17 Characters
delimiter (;)	
Pass Percent	1-3 numeric characters between 1 and 100
delimiter(;)	
Question List	This list is series of individual question numbers or question ranges separated by commas. Spaces may be used between fields to increase readability. A question range is a beginning question number and an ending question number separated by a hyphen. For example the question range 3-5 specifies the topic includes questions 3, 4 and 5. An example of a valid Question List is: 1, 3, 5-7, 9, 20 which specifies the topic contains question 1, 3, 5, 7, 8, 9, and 20

An brief example of the contents of a Topics Data file is as follows:

Trigonometry; 70; 2, 5-8, 10, 14-16
Calculus; 60;1,3-4, 9,11-13,17-20